Title:

Combined Effect of Drying Conditions and Starch Composition on Breadmaking Ability of Sour Cassava Starch

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Abstract: (Your abstract must use **Normal style** and must fit in this box. Your abstract should be no longer than 300 words. The box will 'expand' over 2 pages as you add text/diagrams into it.)

This work fits into the context of understanding contribution of determinant factors to predict breadmaking ability of sour starch. The breadmaking ability is determined by molecular mechanism of starch degradation but, to date, is not fully elucidated [1-5]. Many works have located this degradation in molecular [1-2,6-9] or supramolecular level [3-4,10-11]. 13 cassava varieties of Colombia (3 lowlands and 10 highlands) have been dissociated by 4 different processes (fermentation and/or sun-drying) and genetically, in order to determine the influence of treatments, varieties and altitude on the breadmaking ability.

The pasting and thermal properties were examined using a rapid viscoanalyzer (RVA) and a differential scanning calorimetry (DSC), respectively. The intrinsic viscosity, granular size, oxidation rate and amylose content have also been performed.

The results highlight a different behaviour during breadmaking depending on altitude: highlands varieties, which are the poorest in amylose, are more sensitive to sun-drying and provide better breadmaking ability. Among the physicochemical properties, only the amylose content was correlated with the breadmaking ability. Otherwise, varietal and altitude effects present similar importance than treatment effect.

In addition, the different treatments have an influence on the breadmaking ability and this is the fermentation followed by sun-drying which improves significantly this property. The physicochemical parameters show that essentially the fermentation has an impact on the granular structure. For lowlands varieties, granules could be attacked on their surface whereas for highlands, granules could be attacked more homogeneously to their center during fermentation, resulting in a weakened granule structure but no reduction in granules diameter. Moreover, there is no correlation between the oxidation rate and the breadmaking ability. Therefore, it could appear that the mechanism of breadmaking can be connected to a supramolecular level. These developments could be useful to understand breadmaking ability and improve the quality of the final product.

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